

IN THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Previously presented) A magnetic recording medium including at least a magnetic layer on a substrate, wherein:

the magnetic recording medium comprises, between said substrate and said magnetic layer, an under layer and/or a seed layer, and a crystal particle diameter control layer for controlling a crystal particle diameter and a particle diameter distribution of the magnetic layer, the crystal particle diameter control layer comprises an alloy containing chromium (Cr) and carbon (C) and contains carbon (C) in a range of 0.01 at% to 0.5 at%, and said crystal particle diameter control layer comprises an alloy further containing manganese (Mn).

2-3. (Canceled)

4. (Previously presented) A magnetic recording medium including at least a magnetic layer on a substrate, wherein:

the magnetic recording medium comprises, between said substrate and said magnetic layer, an under layer and/or a seed layer, and a crystal particle diameter control layer for controlling a crystal particle diameter and a particle diameter distribution of the magnetic layer, and the crystal particle diameter control layer comprises an alloy containing chromium (Cr) and carbon (C) and contains carbon (C) in a range of 0.01 at% to 0.5 at%, wherein said crystal particle diameter control layer contains manganese (Mn) in a range of 0.5 at% to 5 at%.

5-6. (Canceled)

7. (Previously presented) A magnetic recording medium including two or more magnetic layers on a substrate, and including a nonmagnetic layer between at least one pair of said magnetic layers, wherein:

said nonmagnetic layer comprises a crystal particle diameter control layer for controlling a crystal particle diameter and a particle diameter distribution of the magnetic layers, and the crystal particle diameter control layer comprises an alloy containing chromium (Cr) and carbon (C) and contains carbon (C) in a range of 0.01 at% to 0.5 at%.

8. (Canceled)

9. (Previously presented) The magnetic recording medium according to claim 7 wherein the film thickness of said nonmagnetic layer is in a range of 5 to 100 angstroms.

10. (Previously presented) The magnetic recording medium according to claim 7 wherein for said magnetic layer, the saturation magnetic flux density B_s of the substrate-side magnetic layer is larger than the saturation magnetic flux density B_s of the medium surface-side magnetic layer.

11-28. (Canceled)

29. (Previously presented) The magnetic recording medium of claim 1 wherein said crystal particle diameter control layer further contains at least one element selected from a group consisting

of molybdenum (Mo), vanadium (V), tungsten (W), zirconium (Zr), titanium (Ti), tantalum (Ta), nickel (Ni), niobium (Nb), oxygen (O), and nitrogen (N).

30. (Canceled)

31. (Previously presented) The magnetic recording medium of claim 4 wherein said crystal particle diameter control layer further contains at least one element selected from a group consisting of molybdenum (Mo), vanadium (V), tungsten (W), zirconium (Zr), titanium (Ti), tantalum (Ta), nickel (Ni), niobium (Nb), oxygen (O), and nitrogen (N).

32-33 (Canceled)

34. (Previously presented) The magnetic recording medium according to claim 29 wherein the content of said element or the total of said elements is in a range of 2 at% to 30 at%.

35. (Canceled)

36. (Previously presented) The magnetic recording medium according to claim 31 wherein the content of said element or the total of said elements is in a range of 2 at% to 30 at%.

37-38 (Canceled)

39. (Previously presented) A magnetic recording medium including two or more magnetic layers on a substrate, and including a nonmagnetic layer between at least one pair of said magnetic layers, wherein:

said nonmagnetic layer comprises the crystal particle diameter control layer of claim 1.

40. (Canceled)

41. (Previously presented) A magnetic recording medium including two or more magnetic layers on a substrate, and including a nonmagnetic layer between at least one pair of said magnetic layers, wherein:

said nonmagnetic layer comprises the crystal particle diameter control layer of claim 4.

42-44. (Canceled)

45. (Previously presented) A magnetic recording medium including two or more magnetic layers on a substrate, and including a nonmagnetic layer between at least one pair of said magnetic layers, wherein:

said nonmagnetic layer comprises the crystal particle diameter control layer of claim 29.

46. (Canceled)

47. (Previously presented) A magnetic recording medium including two or more magnetic layers on a substrate, and including a nonmagnetic layer between at least one pair of said magnetic layers, wherein:

said nonmagnetic layer comprises the crystal particle diameter control layer of claim 31.

48-50. (Canceled)

51. (Previously presented) A magnetic recording medium including two or more magnetic layers on a substrate, and including a nonmagnetic layer between at least one pair of said magnetic layers, wherein:

said nonmagnetic layer comprises the crystal particle diameter control layer of claim 34.

52. (Canceled)

53. (Previously presented) A magnetic recording medium including two or more magnetic layers on a substrate, and including a nonmagnetic layer between at least one pair of said magnetic layers, wherein:

said nonmagnetic layer comprises the crystal particle diameter control layer of claim 36.

54-55 (Canceled)

56. (Previously presented) The magnetic recording medium according to claim 39 wherein the film thickness of said nonmagnetic layer is in a range of 5 to 100 angstroms.

57. (Canceled)

58. (Previously presented) The magnetic recording medium according to claim 41 wherein the film thickness of said nonmagnetic layer is in a range of 5 to 100 angstroms.

59-61. (Canceled)

62. (Previously presented) The magnetic recording medium according to claim 45 wherein the film thickness of said nonmagnetic layer is in a range of 5 to 100 angstroms.

63. (Canceled)

64. (Previously presented) The magnetic recording medium according to claim 47 wherein the film thickness of said nonmagnetic layer is in a range of 5 to 100 angstroms.

65-67. (Canceled)

68. (Previously presented) The magnetic recording medium according to claim 51 wherein the film thickness of said nonmagnetic layer is in a range of 5 to 100 angstroms.

69. (Canceled)

70. (Previously presented) The magnetic recording medium according to claim 53 wherein the film thickness of said nonmagnetic layer is in a range of 5 to 100 angstroms.

71-102 (Canceled)